

Clinician's Guide to Measles Diagnosis

Clinical Case Definition:

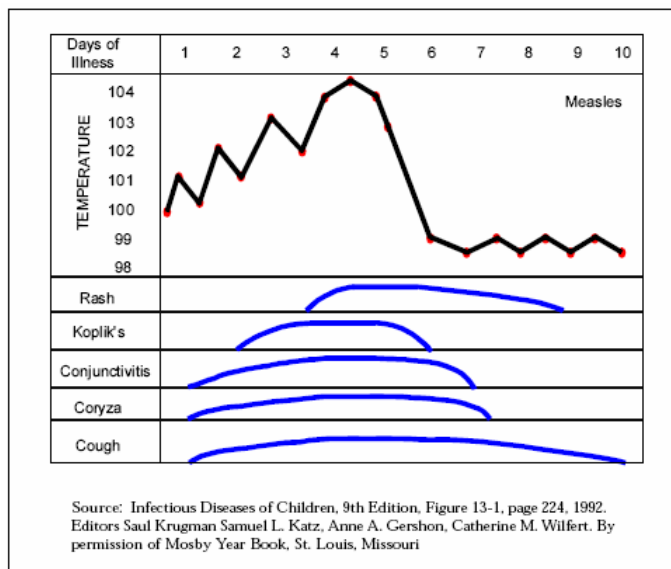
A generalized maculopapular rash of at least 3 days duration; **AND** a fever $\geq 101.0^{\circ}\text{F}$ ($\geq 38.3^{\circ}\text{C}$); **AND** cough, coryza, or conjunctivitis.

Clinical Features:

Prodrome: Begins 10-12 days after exposure, generally lasts 2-4 days, with a maximum range of 1-7 days. Fever and malaise for about 24 hours, with fever gradually increasing often as high as 103-105 $^{\circ}\text{F}$. Cough, coryza (runny nose), and conjunctivitis are present. Koplik spots (pin-point, depressed blue/white spots on bright red background on the buccal mucosa) may occur 1-2 days before rash onset to 1-2 days after rash.

Rash: Maculopapular, usually lasting 5-6 days. Begins at the hairline, and then involves the face and upper neck. During the next 3 days, the rash gradually proceeds downward and outward, reaching extremities last, it is less pronounced on hands and feet. The lesions are generally discrete, but may become confluent, particularly on the upper body. Rash fades in the same order that it appears, from head to feet.

Time course of clinical events in measles infection.



** Measles images are available at: <http://www.cdc.gov/vaccines/vpd-vac/measles/photos.htm> **

Differential Diagnosis:

Conditions frequently confused with measles:

Condition	Clinical Clues
Drug rashes	Recent history of new medication use, absent prodrome
Echovirus and coxsackievirus infections	More common in summer, absent prodrome
Erythema infectiosum (Fifth Disease)	Fiery red eruption on cheeks with circumoral pallor (slapped-cheek) followed by reticulate rash
Primary HIV Infection- Acute Retroviral Syndrome	Rash is typically confined to trunk, transient fever
Infectious mononucleosis	Lymphadenopathy, lymphocytosis, pharyngitis, often associated with administration of ampicillin
Kawasaki disease	Dry, red, fissured lips, strawberry tongue, oropharyngeal erythema, erythema and edema of palms and soles
Meningococcemia	Lesions are blanching and evolve into petechiae, neurologic features
Roseola infantum	Defervescence and appearance of the rash are simultaneous
Rubella	Absence of a recognizable prodrome, absence or milder severity of fever and other constitutional symptoms, enlarged (and usually tender) postauricular and suboccipital lymph nodes, and short duration
Scarlet fever	History of streptococcal pharyngitis, rash spares face, palms, and soles

Clinical Features:

	Higher Likelihood	Lower Likelihood
Clinical History & Physical Exam Findings	Generalized maculopapular rash: <ul style="list-style-type: none"> • Occurs 5-7 days after symptoms • Lasts 3 or more days • Brownish hue • Progresses from face to body to extremities • Rash becomes confluent as it progresses • Rash affects palms and soles 	Non-maculopapular rash, localized rash, or rash with different progression: <ul style="list-style-type: none"> • Lacy, reticular rash • Petechial rash • Rash with vesicles, pustules, or nodules • Rash that spares face • Rash that spares palms/soles • Rash that begins on extremities or trunk
	Prodrome: <ul style="list-style-type: none"> • Fever greater than 101°F (38.3°C) • Cough, coryza, or conjunctivitis • Koplik's Spots (blue/gray specks with red base on buccal mucosa, may resemble grains of sand) 	Absence of prodrome, or limited/inconsistent symptoms such as isolated fever
Exposure	Known exposure to measles case or ongoing community outbreak	No known exposure
Past Medical History	No history of MMR vaccination or incomplete vaccination history (includes all children of pre-school age and younger that have only received 1 dose of MMR)	History of 2 doses of MMR
	International travel within last 30 days	No international travel
Alternative Diagnoses	No new drug use in last 30 days	History of antibiotics, other new drug use in last 30 days
	No history of vaccinations in last 30 days.	Patient received vaccines in last 30 days
	No recent history of exposure to known allergens	Recent history of exposure to known plant, animal, insect, other allergens

Public Health Reporting:

Measles is an immediately reportable disease in Utah. Clinicians should not wait for confirmatory laboratory testing to report measles to public health; all suspected cases should be reported to public health immediately. Cases can be reported to the local health department or to the Utah Department of Health at (801) 538-6191 (available 24/7).